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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,875	03/22/2004	Alexander I. Yatskov	021944.116US	9876
26720 7590 01/06/2010 LOCKE LORD BISSELL & LIDDELL LLP ATTN: IP DOCKETING 600 TRAVIS STREET 3400 CHASE TOWER HOUSTON, TX 77002				
EXAMINER				
PAPE, ZACHARY				
ART UNIT		PAPER NUMBER		
2835				
NOTIFICATION DATE		DELIVERY MODE		
01/06/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

hoip@lockelord.com

Office Action Summary

Application No.

10/805,875

Applicant(s)

YATSKOV ET AL.

Examiner

ZACHARY M. PAPE

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-29, 32-40, 42, 43, 75 and 79-84 is/are pending in the application.
4a) Of the above claim(s) 35 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 26-29, 32-34, 36-40, 42, 43, 75 and 79-84 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. The following detailed action is in response to the correspondence filed 10/16/2009.

Claim Objections

2. The objection to claim 83 has been withdrawn in view of the amendment thereto.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. **Therefore, the details to the pump, as per claim 79 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 75 and 79 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. Claim 75 recites limitations which are not properly supported by the originally filed specification. The Examiner assumes that the Applicant's find support for claim 75 at [0031] of the present written description which recites, "In a further aspect of this embodiment, the boiling point of such a refrigerant can be controlled by controlling the static pressure, subcooling the refrigerant, or increasing the condensing capacity of the condenser...". However claim 75 recites, "increasing the heat transfer capacity of the external heat exchanger" which is not supported by the originally filed specification, as well as "any combination thereof" which is also not supported by the originally filed

specification. Further, the Examiner was also unable to find any support in the originally filed specification for the controller providing such functions.

For the purposes of examination the claim will not be considered.

6. Claim 79 recites, "locating a working fluid pump between the air-to-fluid heat exchanger and the external heat exchanger and downstream of the external heat exchanger" which is not supported by the originally filed specification. Indeed Fig 2 appears to show that the pump is a part of the second heat exchanger (240).

For the purposes of examination the limitation will be considered to recite, "locating a working fluid pump external to the cabinet".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26, 28-29, 32-34, 36-40, 43, 79-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundqvist (US 4,514,746) in view of the Examiner's Official Notice (EON).

With respect to claim 26, Lundqvist teaches (In Figs 1-3) a system comprising: an enclosure (Rack 5 and module 7) having a chassis therein and adapted to operatively house heat-producing electronic equipment and defining an air flow path into the enclosure (See Fig 2), across the electronic equipment and out of the enclosure

(See Fig 2); a first heat exchanger (13) positioned in the enclosure and in the air flow path (See Fig 2), and comprising a plurality of cooling fins (13b'), each having a fluid passage (13a') therein; a working fluid (Col 6, Lines 8-15) configured to change state from a first phase to a second phase within at least one of the fluid passages in response to heat in the air flow path; a heat exchanger (17a) positioned externally to and spaced apart from the enclosure and in fluid communication with the first heat exchanger (See Fig 1), wherein the external heat exchanger is configured to change the state of the working fluid from the second phase to the first phase; a pump (18) located downstream of the external heat exchanger and configured to circulate the working fluid in the first phase to the first heat exchanger. Lundqvist fails to specifically teach or suggest a controller operably coupled to the system and configured to control the temperature of the working fluid supplied to the first heat exchanger above a dew point of the air in the air flow path. The Examiner hereby takes Official Notice of the conventionality of using a controller with a refrigeration circuit. Therefore It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the EON as per above with that of Lundqvist, such that the system of Lundqvist includes a controller since doing so would, predictably, provide more accurate cooling to system. Additionally, having a controller would also allow for less human interaction with the system since it would control itself.

With respect to claim 28, Lundqvist further teaches a plurality of computer modules are held in a first electronics compartment (I.E. 5g, see Col 4, line 65 – Col 5, Line 4).

With respect to claims 29 and 32, Lundqvist further teaches a second electronics compartment (I.E. 5f) positioned in the chassis and in the air flow path wherein the first heat exchanger (13) is positioned between the first (I.E. 5g) and the second (I.E. 5f) electronics compartments (See Fig 1).

With respect to claim 33, Lundqvist further teaches (In Fig 1) an air mover (7d) associated with the enclosure; a first plurality of computer modules(I.E. 5g, see Col 4, line 65 – Col 5, Line 4) held in a first electronics compartment (5b) at least partially in the airflow path; a second electronics compartment (5c) positioned in the air flow path in the chassis and spaced apart from the first electronics compartment; a second plurality of computer modules (I.E. 5g, see Col 4, line 65 – Col 5, Line 4) held in the second electronics compartment at least partially in the air flow path; and a second air-to-fluid heat exchanger (Another of 13) positioned in the air flow path in the chassis, wherein the second heat exchanger is positioned at least partially downstream of the first electronics compartment and at least partially upstream of the second electronics compartment (I.E. between 5b and 5c), and wherein the second heat exchanger includes at least one opening through which the air mover moves air to transfer heat from the air to the fluid.

With respect to claims 34 and 36, Lundqvist further teaches that the air mover is configured to draw air upward through the chassis and past the first electronics compartment, the first and second heat exchanger and the second electronics compartment (See Fig 3). With respect to the position of the air mover, it has been held that mere rearrangement of parts is obvious (In re Japikse, 181 F.2d 1019, 86 USPQ 70

(CCPA 1950)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to move the air mover of Lundqvist to a position toward an upper portion of the chassis and carried by the chassis since doing so would, predictably, reduce damage to the fan in the event of a leak or flood in the room.

With respect to claim 37, Lundqvist further teaches (In Figs 1-2) a third electronics compartment (5d) positioned in the air flow path in the chassis and spaced apart from the second electronics compartment; a third plurality of computer modules held in the third electronics compartment at least partially in the air flow path; and a third heat exchanger (Another of 13) positioned in the air flow path in the chassis, wherein the third heat exchanger is positioned at least partially downstream of the second electronics compartment (5c) and at least partially upstream of the third electronics compartment (5d), and wherein the third heat exchanger includes at least one opening through which the air mover moves air.

With respect to claim 38, Lundqvist further teaches that the air mover (7d), the electronics compartments (5b-5d), and the heat exchangers (13) are arranged vertically with respect to the chassis (See Fig 1, see also the rejection to claim 33 which re-orientates the fan).

With respect to claim 39, Lundqvist further teaches (In Figs 1 and 3) that the first electronics compartment is configured to hold the first plurality of computer modules in edgewise orientation with respect to the air flow path toward a first side of the first heat exchanger, and wherein the second electronics compartment is configured to hold the second plurality of computer modules in an edgewise orientation with respect to the air

flow path from a second side of the first heat exchanger opposite to the first side of the first heat exchanger.

With respect to claims 40 and 43, Lundqvist further teaches that each of the first plurality of computer modules is individually carried by the first electronics compartment, wherein each of the first plurality of computer modules includes at least a first computer processor, wherein each of the second plurality of computer modules is individually carried by the second electronics compartment, and wherein each of the second plurality of computer modules includes at least a second computer processor (See the written description esp: Col 9, Line 67 - Col 5 Line 4).

With respect to method claims 79 and 82, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Lundqvist and EON references.

With respect to method claims 80-81 and 84, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Lundqvist and EON references (See Lundqvist Col 5, Line 67 – Col 6, Line 7 where Lundqvist teaches keeping the dew point of the air-to-fluid heat exchangers below the localized dew point to keep fluid from condensing on the heat exchangers).

With respect to method claim 83, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Lundqvist and EON references (See Col 5, Lines 55-57 which teaches that the external heat exchanger is a fluid-to-fluid heat exchanger which is cooled with chilled water).

8. Claims 27 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundqvist in view of EON and further in view of Salt (US 5,603,375).

With respect to claims 27 and 42, Lundqvist in view of EON teaches the limitations of claims 26 and 42 above but is silent as to the working fluid having a boiling point in the first heat exchanger between about 45F and about 75F. Salt teaches utilizing a working fluid which has a boiling point in a heat exchanger of between about 45F and 75F (Column 2, Lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salt with that of Lundqvist and EON to provide adequate heat transfer capabilities.

Response to Arguments

9. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZACHARY M. PAPE whose telephone number is (571)272-2201. The examiner can normally be reached on Mon.- Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on 571-272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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